

## **ABSTRACT OF THE DISCLOSURE**

The present invention provides a method for forming quantum tunneling devices comprising the steps of: (1) providing a quantum well, the quantum well comprising a composite material, the composite material comprising at least a first and a second material; and (2) processing the quantum well so as to form at least one segregated quantum tunneling structure encased within a shell comprised of a material arising from processing the composite material, wherein each segregated quantum structure is substantially comprised of the first material. The present invention also comprises additional methods of formation, quantum tunneling devices, and electronic devices.